Grade 3 Math

Subclaim: Major Content

The standard designation is included preceding each evidence statement.
Evidence Statements may:
1. Use exact standard language
2. Be derived by focusing on specific parts of a standard
3. Be integrative - the testing of more than one of the standards on a single item/task without going beyond the standards to create new requirements

Evidence Statements	Clarifications	Relationship to Mathematical Practices
Operations and Algebra (OA)		
3.OA.1 Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5 × 7.	●Tasks involve interpreting rather than calculating products in terms of equal groups, arrays, area, and/or measurement quantities. For example, "the total number of books if 5 shelves each have 7 books" can be represented by the expression 5x7 rather than "Marcie placed 7 books on each of 5 shelves. How many books does she have?" ●Tasks do not require students to interpret products in terms of repeated addition, skipcounting, or jumps on the number line. ●The italicized example refers to describing a real-world context, but describing a context is not the only way to meet the standard. For example, another way to meet the standard would be to identify contexts in which a total can be expressed as a specified product.	MP.2, MP.4

3.OA.2 Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8	●Tasks involve interpreting rather than calculating quotients in terms of equal groups, arrays, area, and/or measurement quantities. For example, "35 books are placed equally on 7 shelves" can be represented by the expression 35 ÷ 7 rather than "Marcie has 35 books. She placed the same number on each of 7 shelves. How many books did she place on each shelf?" ●Tasks do not require students to interpret quotients in terms of repeated subtraction, skipcounting, or jumps on the number line. ●The italicized example refers to describing a real-world context, but describing a context is not the only way to meet the standard. For example, another way to meet the standard would be to identify contexts in which a number of objects can be expressed as a specified quotient. ●Half the tasks require interpreting quotients as a number of objects in each share and half require interpreting quotients as a number of equal shares.	MP.2, MP.4
3.OA.3-1 Use multiplication within 100 (both factors less than or equal to 10) to solve word problems in situations involving equal groups, arrays, or area, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	●All products come from the harder three quadrants of the times table (a × b where a > 5 and/or b > 5). ●75% of tasks involve multiplying to find the total number (equal groups, arrays); 25% involve multiplying to find the area.	MP.1, MP.4
3.OA.3-2 Use multiplication within 100 (both factors less than or equal to 10) to solve word problems in situations involving measurement quantities other than area, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	●All products come from the harder three quadrants of the times table (a × b where a > 5 and/or b > 5). ●Tasks involve multiplying to find a total measure (other than area).	MP.1, MP.4
3.OA.3-3 Use division within 100 (quotients related to products having both factors less than or equal to 10) to solve word problems in situations involving equal groups, arrays, or area, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	●All quotients are related to products from the harder three quadrants of the times table (a × b where a > 5 and/or b > 5). ●Tasks using this Evidence Statement will be created equally among the following: - dividing to find the number in each equal group or in each equal row/column of an array; - dividing to find the number of equal groups or the number of equal rows/columns of an array; and - dividing an area by a side length to find an unknown side length.	MP.1, MP.4
3.OA.3-4 Use division within 100 (quotients related to products having both factors less than or equal to 10) to solve word problems in situations involving measurement quantities other than area, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.	●All quotients are related to products from the harder three quadrants of the times table (a × b where a > 5 and/or b > 5). ●Half the tasks involve finding the number of equal pieces and half involve finding the measure of each piece.	MP.1, MP.4

3.OA.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = ? \div 3$, $6 \times 6 = ?$.	●Tasks do not have a context. ●Only the answer is required. ●All products and related quotients are from the harder three quadrants of the times table (a × b where a > 5 and/or b > 5).	
3.OA.6 Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.	●All products and related quotients are from the harder three quadrants of the times table (a × b where a > 5 and/or b > 5).	
3.OA.7-1 Fluently multiply and divide within 25. By end of grade 3, know from memory all products of two one-digit numbers.	●Tasks do not have a context. ●Only the answer is required. ●Tasks require finding products and related quotients accurately. For example, each 1-point task might require four or more computations, two or more multiplication and two or more division. ●Tasks are not timed.	
3.OA.7-2 Fluently multiply and divide within 100. By the end of Grade 3, know from memory all products of two one-digit numbers.	●Tasks do not have a context. ●Only the answer is required. ●Tasks require finding of products and related quotients accurately. For example, each 1- point task might require four or more computations, two or more multiplication and two or more division. ●75% of tasks are from the harder three quadrants of the times table (a × b where a > 5 and/or b > 5). ●Tasks are not timed.	
3.OA.8 Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	●Tasks do not require a student to write a single equation with a letter standing for the unknown quantity in a two-step problem, and then solve that equation. ●Tasks may require students to write an equation as part of their work to find a solution, but students are not required to use a letter for the unknown. ●Addition, subtraction, multiplication and division situations in these problems may involve any of the basic situation types with unknowns in various positions.	MP.1, MP.4
Numbers and Operations Fractions (NF)		
3.NF.1 Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.	●Tasks do not involve the number line. ●Fractions equivalent to whole numbers are limited to 0 through 5. ●Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8.	MP.2

3.NF.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line. b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.	●Fractions may be greater than 1. ●Fractions equivalent to whole numbers are limited to 0 through 5. ●Fractions equal whole numbers in 20% of these tasks. ●Tasks have "thin context"2 or no context. ●Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8.	MP.5
3.NF.3a-1 Explain equivalence of fractions in special cases and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size.	●Tasks do not involve the number line. ●Fractions equivalent to whole numbers are limited to 0 through 5. ●Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8. ●The explanation aspect of 3.NF.3 is not assessed here.	MP.5
3.NF.3a-2 Explain equivalence of fractions in special cases and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same point on a number line.	●Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8. ●Fractions equivalent to whole numbers are limited to 0 through 5. ●The explanation aspect of 3.NF.3 is not assessed here.	MP.5
3.NF.3b-1 Explain equivalence of fractions in special cases and compare fractions by reasoning about their size. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3).	●Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8. ●Fractions equivalent to whole numbers are limited to 0 through 5. ●The explanation aspect of 3.NF.3 is not assessed here.	MP.7
3.NF.3c Explain equivalence of fractions in special cases and compare fractions by reasoning about their size. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.	●Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8. ●Fractions equivalent to whole numbers are limited to 0 through 5. ●The explanation aspect of 3.NF.3 is not assessed here.	MP.3, MP.5, MP.7
3.NF.3d Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.	●Tasks are limited to fractions with denominators 2, 3, 4, 6, and 8. ●Fractions equivalent to whole numbers are limited to 0 through 5. ●Justifying is not assessed here. For this aspect of 3.NF.3d, see 3.C.3-1 and 3.C.4-4. ●Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.7
3.NF.A.Int.1 In a contextual situation involving a whole number and two fractions not equal to a whole number, represent all three numbers on a number line diagram, then choose the fraction closest in value to the whole number.	●Fractions equivalent to whole numbers are limited to 0 through 5. ●Fraction denominators are limited to 2, 3, 4, 6 and 8.	MP.2, MP.4, MP.5

Measurement and Data (MD)		
3.MD.1-1 Tell and write time to the nearest minute and measure time intervals in minutes.	●Time intervals are limited to 60 minutes ●No more than 20% of items require determining a time interval from clock readings having different hour values. ●Acceptable interval: Start time 1:20, end time 2:10 – time interval is 50 minutes. Unacceptable interval: Start time 1:20, end time 2:30 – time interval exceeds 60 minutes.	
3.MD.1-2 Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	●Only the answer is required. ●Tasks do not involve reading start/stop times from a clock nor calculating elapsed time.	MP.1, MP 2, MP.4, MP.5
3.MD.2-1 Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).	●Estimates are the result of reading a scale	
3.MD.2-2 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.	●Only the answer is required (methods, representations, etc. are not assessed here). ●Units of grams (g), kilograms (kg), and liters (l).	MP.1, MP.2, MP.4, MP.5
3.MD.2-3 Measure or estimate liquid volumes or masses of objects using standard units of grams (g), kilograms (kg), and liters (l), then use the estimated value(s) to estimate the answer to a one-step word problem by using addition, subtraction, multiplication, or division. Content Scope: 3.MD.2		MP.5, MP.6 (in the case of measuring)
3.MD.5 Recognize area as an attribute of plane figures and understand concepts of area measurement. a. A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units		MP.7
3.MD.6 Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).		MP.7

3.MD.7b-1 Relate area to the operations of multiplication and addition. b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real-world and mathematical problems.	●Products are limited to the 10x10 multiplication table. ●This ES is different from 3.OA.3-1 in the following ways: -3.MD.7b-1 emphasizes application/skill while the emphasis of 3.OA.3-1 is on demonstration of understanding of multiplication using not only area but also equal groups and arrays by modeling. - 3.MD.7b-1 permits mathematical problems while 3.OA.3-1 is restricted to word problems. - 3.MD.7b-1 allows for factors less than or equal to 5 while the factors used in 3.OA.3-1 are restricted to the harder three quadrants.	MP.4, MP.5
3.MD.7d Relate area to the operations of multiplication and addition. d. Recognize area as additive. Find areas of rectilinear3 figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.		MP.7
Word Problems (Int)		
3.Int.1 Given a two-step problem situation with the four operations, round the values in the problem, then use the rounded values to produce an approximate solution. Content Scope: 3.OA.8, 3.NBT.1, 3.NBT.2, 3.NBT.3	●Tasks must be aligned to the first standard and 1 or more of the subsequent standards listed in the content scope. ●Tasks do not require computations beyond the grade 3 expectations. ●Tasks do not require a student to write a single equation with a letter standing for the unknown quantity in a two-step problem, and then solve that equation. ●Tasks may require students to write an equation as part of their work to find a solution, but students are not required to use a letter for the unknown. ●Addition, subtraction, multiplication and division situations in these problems may involve any of the basic situation types with unknowns in various positions.	MP.4, MP.6

3.Int.2 Solve two-step word problems using the four operations requiring a substantial addition, subtraction, or multiplication step, drawing on knowledge and skills articulated in 3.NBT. Content Scope: 3.OA.8, 3.NBT.2, and 3.NBT.3	●Tasks must be aligned to the first standard and 1 or more of the subsequent standards listed in the content scope. ●Tasks do not require a student to write a single equation with a letter standing for the unknown quantity in a two-step problem, and then solve that equation. ●Tasks may require students to write an equation as part of their work to find a solution, but students are not required to use a letter for the unknown. ●Addition, subtraction, multiplication and division situations in these problems may involve any of the basic situation types with unknowns in various positions. Substantial (def.) – Values should be towards the higher end of the numbers identified in the standards.	MP.1, MP.4
3.Int.5 Add, subtract, or multiply to solve a one-step word problem involving masses or volumes that are given in the same units, where a substantial addition, subtraction, or multiplication step is required drawing on knowledge and skills articulated in 3.NBT, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.7. Content Scope: 3.MD.2, 3.NBT.2, and 3.NBT.3	●Tasks must be aligned to the first standard and 1 or more of the subsequent standards listed in the content scope. Substantial (def.) – Values should be towards the higher end of the numbers identified in the standards.	MP.1, MP.2, MP.4